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**Conference of the Parties to the
Minamata Convention on Mercury
First meeting**

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Item 6 (e) of the provisional agenda*

**Matters stipulated by the Convention for action by the
Conference of the Parties: the guidance referred to in
paragraphs 9 (a) and 9 (b) of article 8**

**Guidance in relation to mercury emissions referred to in
paragraphs 9 (a) and 9 (b) of article 8**

Note by the secretariat

1. Paragraph 9 of article 8 of the Minamata Convention on Mercury, on emissions, provides that the Conference of the Parties shall, as soon as practicable, adopt guidance on criteria that parties may develop pursuant to paragraph 2 (b) and on the methodology for preparing inventories of emissions.
2. At its seventh session, the intergovernmental negotiating committee to prepare a global legally binding instrument on mercury considered the report of the group of technical experts on the development of guidance required under article 8 of the Convention (UNEP(DTIE)/Hg/INC.7/6, UNEP(DTIE)/Hg/INC.7/6/Add.3 and UNEP(DTIE)/Hg/INC.7/6/Add.4). It was agreed that the draft guidance contained therein, as amended in annex III of the report of the committee on the work of its seventh session (UNEP(DTIE)/Hg/INC.7/22/Rev.1), would be forwarded to the Conference of the Parties for adoption at its first meeting. A draft decision for the adoption of the guidance is provided as annex I to the present note; the guidance on criteria that parties may develop pursuant to paragraph 2 (b) of article 8 is presented as annex II, and the guidance on the methodology for preparing inventories of emissions pursuant to article 8 is presented in annex III.

Suggested action by the Conference of the Parties

3. The Conference may wish to formally adopt the guidance with regard to paragraph 9 of article 8 as put forward by the intergovernmental negotiating committee at its seventh session.

* UNEP/MC/COP.1/1.

Annex I

Draft decision MC-1/[XX]: Guidance in relation to mercury emissions

The Conference of the Parties,

Recognizing the importance of the control of mercury emissions in achieving the objective of the Convention,

Decides to adopt the guidance with regard to article 8, particularly with regard to paragraphs 9 (a) and (b), on guidance on criteria that parties may develop pursuant to paragraph 2 (b) and on the methodology for preparing inventories of emissions, as put forward by the intergovernmental negotiating committee at its seventh session.

Annex II

Guidance on criteria that the parties may develop pursuant to paragraph 2 (b) of article 8

A. Introduction

1. Article 8 of the Minamata Convention on Mercury deals with emissions. The article concerns controlling and, where feasible, reducing emissions of mercury and mercury compounds, often expressed as “total mercury”, to the atmosphere through measures to control emissions from the point sources falling within the source categories listed in Annex D. These source categories are:

- Coal-fired power plants
- Coal-fired industrial boilers
- Smelting and roasting processes used in the production of non-ferrous metals
- Waste incineration facilities
- Cement clinker production facilities.

2. Parties are required to control emissions from relevant sources. Paragraph 2 (b) of article 8 defines “relevant source” as a source falling within one of the source categories listed in Annex D. Paragraph 2 (b) continues as follows:

A Party may, if it chooses, establish criteria to identify the sources covered within a source category listed in Annex D so long as those criteria for any category include at least 75 per cent of the emissions from that category.

3. Paragraph 9 (a) of article 8 of the Convention calls upon the Conference of the Parties, as soon as practicable, to adopt guidance on criteria that parties may develop pursuant to paragraph 2 (b).

B. Criteria that parties may develop pursuant to paragraph 2 (b)

4. Paragraph 2 (b) of Article 8 allows a party the option of establishing criteria limiting the sources that it controls within a point source category to certain sources, provided that those criteria include at least 75 per cent of the emissions from that category. This option would enable a party to apply the provisions of Article 8 with some flexibility, recognizing that certain point sources may be more challenging to control for a variety of reasons.

5. If a party were to apply this option, in considering the sources that it would choose to control, it may need to develop an inventory which covers all point sources within the source category listed in Annex D, either on a facility-by-facility basis, or by developing more aggregated data for smaller sources which are anticipated to fall within the 25 per cent not included as relevant sources for the purposes of Article 8. The party may also be able to use information gained from the inventory of emissions from relevant sources prepared in line with paragraph 7 of Article 8.

6. The development of an inventory of emissions¹, with an assessment of the emissions from each point source falling within the source categories listed in Annex D, will assist parties both in deciding whether to control a particular point source, and in verifying that the total emissions from sources which are not controlled do not exceed 25 per cent of all emissions from that source category. Each Party should keep under review the sources to be controlled to ensure that this obligation is still met.

7. In determining whether to control a particular point source within a source category, a party may wish to consider the following:

- (a) The size of the facility: for example, based on the input or throughput (capacity) of the facility;
- (b) The mercury emissions produced by the facility and the percentage of all emissions from this source category that those emissions constitute;
- (c) The expected life of the facility or of the control technology within the facility;
- (d) The location of the facility;

¹ Guidance on the development of an inventory of emissions is available in a separate guidance document.

(e) Any other pollution control measures in place at the facility, in particular those which may produce co-benefits for the control of mercury air emissions.

8. In considering the size of the facility, a party may determine that small facilities within one of the five source categories might not be considered as relevant sources under Article 8, and could be exempt from the requirements to control emissions, based on the proportional contribution of the emissions to the overall total emissions nationally. This consideration may be more applicable within certain source categories, such as coal-fired industrial boilers, where there may be small industrial boilers providing services to small facilities which do not contribute a large amount overall.

9. A party may determine that it is appropriate to establish a threshold for control based on the size and throughput of the facility. This could be based on a consideration of the physical size of the facility, the input amount to the facility, or the production levels of the facility, depending on the factor which the party deems most suitable. With this approach the party would need sufficient emission information to ensure that the threshold level of 75 per cent of total emissions from the source category was met.

10. In considering the expected life of the facility, a party may decide, on the basis of a cost-benefit analysis, that the application of control measures to a facility which is approaching the end of its life is not cost-effective, provided that the facility and other facilities that the party chooses not to control make up less than 25 per cent of the total emissions from the category. It would then be at the discretion of the party to determine an appropriate cut-off for the length of time considered suitable. This criterion may be more appropriate in taking decisions at the outset, as the measures in the Convention are being implemented.

11. The location of the facility may influence the types of control techniques which can be implemented, as it may be difficult to transport certain control techniques to remote locations, and certain techniques may not be appropriate in locations without, for example, good access to a reliable water supply. There may be additional factors related to the requirement for other pollution controls for remote facilities where, for example, particulate matter controls may be less stringently enforced.

12. The inclusion of any other pollution control measures at a facility may result in a party determining that it has controlled mercury emission reduction under a multi-pollutant control strategy. Parties may also wish, however, to consider facilities with existing pollution control mechanisms within the category of facilities which are "not controlled" if, in their view, they would struggle to meet the obligation set out in paragraph 6 of Article 8 for the measures applied by a party to achieve reasonable progress in reducing emissions over time.

Annex III

Guidance on the methodology for preparing inventories of emissions pursuant to Article 8 of the Minamata Convention on Mercury

Background

Article 8 of the Minamata Convention on Mercury, which deals with emissions, sets out the obligation that “[e]ach Party shall establish, as soon as practicable and no later than five years after the date of entry into force of the Convention for it, and maintain thereafter, an inventory of emissions from relevant sources”.

“Relevant sources” means a point source falling within one of the source categories listed in Annex D. A party may, if it chooses, establish criteria to identify the sources covered within a source category listed in Annex D so long as those criteria for any category include at least 75 per cent of the emissions from that category. The source categories² listed in the Annex are:

- Coal-fired power plants
- Coal-fired industrial boilers
- Smelting and roasting processes used in the production of non-ferrous metals³
- Waste incineration facilities
- Cement clinker production facilities.

Paragraph 9 of Article 8 states that the Conference of the Parties shall, as soon as practicable, adopt guidance on the methodology for preparing inventories of emissions.

Many countries, as part of their preparation for implementation and ratification of the Convention, will also conduct an inventory of all mercury use, emissions and releases nationally. Parties may also prepare inventories under other articles of the Convention, such as articles 9 (a mandatory inventory of releases) and 19. These may involve processes distinct from those used for the inventory required under Article 8, but a party may choose to use the same methodology or consistent methodologies for all inventories.

A robust inventory will support parties in their domestic implementation of the Convention, and enable them to demonstrate the extent to which implementation is achieving the objectives of the Convention. For example, it will show to what extent they are achieving the objective set out in paragraph 6 of article 8, that is, that the measures applied by a party to existing sources⁴ in accordance with paragraph 5 should achieve reasonable progress in reducing emissions over time. It will also contribute more broadly to enabling parties individually and collectively to fulfil the obligations under Article 21 (Reporting) and 22 (Effectiveness evaluation).

For the purposes of completeness, parties should include with their inventories information about emissions from all sources within the categories listed in annex D. This could be particularly useful to parties choosing to establish criteria under paragraph 2 (b) of Article 8, in helping them to determine that at least 75 per cent of the emissions from a category listed in Annex D are included within the category of relevant sources.⁵

Steps to establish an emissions inventory

The basic methodology to establish an emissions inventory typically involves many or all of the following steps:

- Plan the approach for development of the emissions inventory, within available resources, and consider how to collect, handle and review data, including any quality control and quality assurance processes
- Collect existing emissions data as a useful starting point
- Identify relevant sources within each source category

² As of [*insert date when guidance is adopted*].

³ For the purpose of this Annex, “non-ferrous metals” refers to lead, zinc, copper and industrial gold.

⁴ “Existing source” is defined in paragraph 2 of Article 8.

⁵ Guidance on establishing criteria for paragraph 2 (b) is available in separate guidance.

- Establish facility-based emissions reporting requirements
- Collect the emissions reports from facilities on a periodic basis (e.g. annually)
- Develop a database to store the reported emissions data
- Facilitate analysis of the results
- Make the data publicly accessible and searchable.

Once it has been established, arrangements must be made to maintain and update the inventory, in line with paragraph 7 of Article 8.

The following sections provide guidance for parties on some of these steps.

Initial steps: identifying the facilities

In preparing to implement the Minamata Convention, a party will develop a plan on how to develop the inventory, including how to collect, review and validate data. An initial step for the party may then be to identify the sources of mercury emissions present within its territory, and also to identify and collect any existing inventories. For the point source categories in Annex D, parties will need to identify the facilities within each of the point source categories present at the national level: once again, existing inventories may already have much of this information. This would be followed by the development of a quantitative inventory by collecting information from each facility considered to be a relevant source within the source category.

Collection of emissions information from individual facilities

Parties will need to collect recorded or estimated data about the point source emissions from individual facilities covered by Article 8 over a defined time period. Typically, inventories are based on a calendar year, so emissions are calculated on an annual basis. The inventory under Article 8 is required within five years of the entry into force of the Convention for that party, the collection of data earlier than this date, however, would contribute to robust estimates.

The inventory should ideally be based on the direct measurement of point source emissions. This will produce the most robust estimates.

Where, however, direct measurement is not practicable, an alternative is to use emission factors. An emission factor is a representative value relating the quantity of mercury emitted to the activity level associated with the source (for example, the throughput of raw material). Other indirect measuring techniques, such as engineering estimates⁶ or mass balance calculations can also be used in the absence of direct measurement.

Additional guidance on the measurement of mercury emissions may be found in the BAT/BEP guidance document, in the chapter on monitoring.

A party could choose also to use a combination of approaches. Estimates using emission factors may provide a better estimate of emissions for a category of sources rather than for any individual sources. It may be particularly useful for example to use aggregated emissions for sources which are too numerous or costly to monitor individually, or where individual reporting would be too burdensome (such as small industrial boilers). The methodology may differ from one source category to another, and could even be different for different types of facility within a source category. A combination of approaches may be particularly useful if a party is defining criteria to identify relevant sources in accordance with paragraph 2 (b) of Article 8.

There are advantages in progressively adopting new and more accurate methods, for example, replacing data based on estimation techniques with actual monitored data as they become available, or replacing generic emission factors with factors which are more representative of the circumstances in a party's territory or at a specific source. At the same time, however, maintaining comparability between data obtained over time, so that trends in controlling emissions are clear, is also necessary for the purposes of tracking progress in reducing emissions.

Parties may wish to establish policies and procedures about how methodological changes are introduced and how frequently this is done, and have arrangements in place where possible to help identify which changes over time are the result of real changes in emissions and those which reflect improvements in estimating techniques.

⁶ For example, as described in section 2.5.4 of the chapter on monitoring in the BAT/BEP guidance document.

Where no national approaches are in place, parties may find it useful to adopt the methodologies set out in international guidance, such as the UNEP Toolkit⁷ or the guidance prepared by the Economic Commission for Europe on the reporting of emission data under the Convention on Long-range Transboundary Air Pollution.⁸

In practice, the decision on the methodology to be used should be based on a combination of factors and may change over time, reflecting what is practical and affordable and what is most suitable in the light of national circumstances. At a minimum, however, there should be transparency about the methodology being used, so that the information in the inventory can be correctly interpreted.

Where the information can practicably be obtained, it is useful to record details of the speciation of the emissions – that is, whether the mercury is in gaseous form or attached to particulates. This information may be useful in mathematically modelling the transport and fate of mercury air emissions.

Once the national methodology or methodologies have been established, parties should provide specific guidance to facilities on the estimation methods to be used, quality control and quality assurance considerations, and the format for data submission

Development of an emissions inventory database

To facilitate reporting, a party could set up a dedicated emissions inventory website to disseminate information, thus enabling industries to download the relevant guidance materials, including reporting templates. Industries should be encouraged to submit their reports in an electronic format, to allow for easier data manipulation and analysis. Parties should require facilities to meet fixed reporting requirements and timelines.

Parties should create internal databases to store facility information (such as the facility's name, location, corporate ownership and other details) and the reported emissions data. This database should be searchable, easy to manipulate and conducive to further data analysis.

Making the data publicly accessible and searchable

Individual facility emissions data and emissions summary reports containing non-confidential information, as well as the methodologies or monitoring methods used, should be made available to the public, consistent with the parties' obligation under Article 18 (Public information, awareness and education). If a Party has set up a website to assist industries in reporting their emissions, the same website could be used to disseminate the emissions data, subject to suitable security arrangements to protect the data. The website should allow users to conduct customized data searches, such as for an individual facility, industrial sector, geographical region, or a specific reporting year.

Where a Party has established a pollutant release and transfer register (PRTR) covering several pollutants, data about point source mercury emissions – including from Annex D sources – are likely to be included. The data search should make it possible to identify and easily obtain data about point source mercury emissions.

More information on the establishment and implementation of PRTRs may be found at the website PRTR.net,⁹ which is developed and maintained by the Organization for Economic Cooperation and Development (OECD), in cooperation with the Economic Commission for Europe and the UNEP collaborating centre GRID-Arendal. The guidance from the Economic Commission for Europe on implementing the Protocol on Pollutant Release and Transfer Registers¹⁰ also contains useful recommendations on developing emissions inventories.

It should be noted that the PRTRs may have thresholds for reporting, under which facilities emitting less than the threshold have no obligation to report.

⁷ UNEP Toolkit for Identification and Quantification of Mercury Releases, available at: <http://www.unep.org/chemicalsandwaste/Chemicals/Mercury/Informationmaterials/GuidanceTrainingMaterialToolkits/MercuryToolkit/tabid/4566/Default.aspx>

⁸ Guidelines for Reporting Emission Data under the Convention on Long-range Transboundary Air Pollution (ECE/AIR/97), available at: http://www.ceip.at/fileadmin/inhalte/emep/reporting_2009/Rep_Guidelines_ECE_EB_AIR_97.

⁹ <http://www.prtr.net/en/>.

¹⁰ United Nations Economic Commission for Europe, *Guidance on Implementation of the Protocol on Pollutant Release and Transfer Registers*, 2008. Available at: <http://www.unece.org/env/pp/prtr.guidancedev.html>.

UNEP Inventory Toolkit

UNEP has developed a set of tools, consistent with the above methodology, for use in establishing inventories. This UNEP toolkit could be a good starting point for parties developing their own emissions inventories. The toolkit potentially covers all sources of mercury emissions and releases to all environmental media, but, to meet the requirements of Article 8, it can also be used to establish more limited inventories covering the point source emissions to the atmosphere from relevant sources under Annex D. Over time, parties should strive to improve and develop their emissions inventories, and the guidance outlined above provides a basis for such an undertaking.

The toolkit is available at two levels: inventory level 1 and inventory level 2.

Inventory level 1 uses factors derived from experience for input and releases to calculate mercury inputs and releases to all environmental media, and presents results as estimates.

Inventory level 2 aims to lead countries through the process of enhancing and refining their initial inventories. It provides guidance on the different techniques and stages of developing the inventory, and includes illustrative examples and extensive information on mercury release sources. It provides a simple methodology, together with an accompanying database to ensure consistency in the development of national inventories.

The methodology for level 2 aims for the identification and quantification (where possible) of all sources of emissions and releases of mercury at the national level. The first step is the establishment of a screening matrix, with an identification of the main source categories present. A party could choose to limit the sources to those source categories listed in Annex D. The second step is the classification of the main source categories into subcategories, to identify individual activities that potentially release mercury. This produces a qualitative identification of source types. The third step involves the development of a quantitative inventory. For a detailed quantitative inventory, activity volume data and process-specific information are gathered and may then be used to calculate estimated mercury releases from the identified sources. The toolkit contains procedures and equations for the calculation of all emissions and releases.

As a final stage, the results of the inventory are compiled. The toolkit recommends the use of a standardized presentation format, which ensures that all known sources are considered (whether they are quantified or not). This allows any data gaps to be revealed, and assists in ensuring that inventories are comparable and transparent. It also provides an opportunity to review, over time, changes in the national emissions and releases of mercury from all sources. This quantitative review conducted under level 2 would contribute to reporting requirements under paragraph 11 of Article 8.
